

## **MONTANA RULE 10(J) PROPOSAL, WEST FORK OF THE BITTERROOT**

### **PROPOSED ACTION**

Montana Fish, Wildlife, and Parks (MFWP) proposes to obtain a permit from the U.S. Fish and Wildlife Service (USFWS) for wolf take under Section 10(j) of the Endangered Species Act. Wolf removal would occur in the West Fork of the Bitterroot (Elk Hunting District 250), beginning as soon as possible for a period of 5 years. Data presented herein demonstrate that the West Fork of the Bitterroot elk population is below population management objectives and wolf predation is a major cause of mortality preventing the elk population from reaching management objectives. In combination with ongoing elk, lion, bear and habitat management, the integration of wolf management to include wolf take is needed to restore recruitment rates of 10-month-old calves to pre-2007 level of at least 25 calves per 100 cows.

Wolf numbers in Elk Hunting District (HD) 250 would be reduced from the minimum of 24 counted in December 2009 to a year-end minimum of 12 wolves represented by 2 – 3 packs from 2010 through 2015. The level of removal would be dependent on pre-treatment wolf abundance in an adaptive fashion based on annual wolf and elk population monitoring data. MFWP would be accountable to the USFWS for maintaining a minimum year-end count of 12 wolves through 2015 unless MFWP proposes and the USFWS accepts a new or amended proposal prior to 2015 in response to new information, or wolves are delisted.

Levels of wolf removal, timing, authorization of involved persons and means of removal in all or parts of HD 250 would be set annually by the Montana Fish, Wildlife & Parks Commission under established public process. Means of removal may include fair chase hunting or trapping by the public, control actions by agency personnel or designees, or any combination approved by the Commission.

For year 1 of this proposal (2010-2011), MFWP proposes to remove no more than 12 wolves, or 50% of the 2009 minimum population. This would represent significant progress in a narrow timeframe toward achieving the wolf management objective of 12 wolves in the West Fork, and would be unlikely to reduce the population below 12 wolves. MFWP would end the removal action at any time prior to the removal of 12 wolves if data indicate that the wolf management objective has been achieved. Removals during subsequent years would be variable and depend on wolf abundance.

For year 1, the removal action would begin on December 15, 2010 or as soon thereafter as approvals are obtained, and would conclude no later than February 28, 2011. MFWP would randomly select 100 individuals from a list of applicants to each take one wolf in HD 250 until the quota of 12 is filled or the removal action ends. MFWP may designate additional individuals if needed to complete the prescribed removal. An Automated License System (ALS) number would be required for application. Nonresidents would not exceed 10% of the successful applicants. The take of a wolf must be reported to MFWP within 12 hours via a mandatory telephone reporting line and followed by a mandatory pelt and skull check by FWP staff within 48 hours for collection of biological data. Pelts and skulls will be retained by MFWP unless authorized individuals also purchase a valid wolf license prior to harvest. Pelts and skulls retained by MFWP may be dispersed for education purposes or destroyed at a later date. The removal action may be closed on 24 hours notice if the quota is reached or anticipated to be reached, or if the wolf management objective is otherwise achieved. Authorized take of wolves must take place from one half hour before sunrise to one half hour after sunset. Wolves may be taken with a firearm or bow and arrow. Wolves may not be taken by baiting, or with the aid of electronic recording/amplification of calling or howling.

## SUMMARY

The U.S. Fish and Wildlife Service (USFWS) reintroduced gray wolves to Yellowstone National Park and the wilderness areas of central Idaho in 1995 and 1996 as a Nonessential Experimental Population under Section 10(j) of the Endangered Species Act. The 10(j) rule was amended in 2005 and again in 2008 to allow states increased management flexibility to address wolf depredations on livestock and unacceptable impacts on wild ungulate populations. Wolf delisting and regulated public hunting is the preferred population management strategy identified in Montana's federally approved wolf conservation and management plan. Through regulated public harvest, MFWP intends to fine tune wolf numbers and distribution with respect to biological and social factors similar to the management approach taken for other wildlife species. However, MFWP has been prevented from fully implementing its management plan because of successful legal challenges that reversed delisting and resulted in renewed Endangered Species Act protections and federal regulations, even though the population is biologically recovered.

This proposal reflects an interim approach to relieve unacceptable impacts of wolf predation on an elk population, which would be ordinarily addressed through regulated, fair chase hunting of wolves had the species management been fully guided by Montana laws, administrative rules, and the state wolf management plan instead of federal regulations. MFWP is submitting this proposal consistent with Rule 10(j) to relieve unacceptable impacts of wolves on an elk population in the Montana portion of the central Idaho Recovery area that MFWP believes will continue to decline without intervention. Data presented herein demonstrate that the West Fork of the Bitterroot elk population is below population management objectives and wolf predation is a primary cause of mortality preventing the elk population from reaching management objectives.

MFWP proposes to reduce wolf numbers in HD 250 from the minimum of 24 counted in December 2009 to a year-end minimum of 12 wolves spatially represented by 2 – 3 packs from 2010 through 2015. For year 1 of this proposal (2010-2011), MFWP proposes to remove no more than 12 wolves, or 50% of the 2009 minimum population. This would provide significant progress towards the achievement of the wolf management objective of 12 wolves in the West Fork, and would be unlikely to reduce the population below 12 wolves. Annual adjustments to the number of wolves to be removed will be based on monitoring data and ultimately approved by the MFWP Commission each year.

The West Fork elk population is on the brink of a steep and unprecedented decline that can only be avoided by immediately and sharply elevating survival rates of calves through their first year of life. To improve elk numbers and recruitment in the West Fork, MFWP has already increased opportunities and harvest of mountain lions and black bears. Additionally, MFWP progressively implemented restrictions on elk hunting from 2008 through 2010 and eliminated antlerless harvest for the 2010 season. Working with cooperators, MFWP has worked to improve habitat and protect privately owned habitats from development. However, without the ability to manage the level of wolf predation by adjusting the number of wolves in the area, the West Fork elk population will continue to display poor recruitment and further decline. Montana expects wolf removal under the 10 (j) rule to be a short-lived and temporary measure in the interim before regaining full management authority for a delisted wolf population.

This removal effort is warranted due to unacceptable impacts of predation by a biologically recovered wolf population to elk numbers and specifically calf recruitment. Low calf recruitment is preventing the population from increasing to achieve management objectives. This localized removal action is

proposed for 1 of 44 elk management units in the state. FWP documented a minimum 37 breeding pairs of wolves in Montana by the end of 2009. Thirty-six of those 37 breeding pairs occur outside the proposed removal area.

Elk populations and wolf packs will be closely monitored through radio telemetry, aerial counts, and ground observations to assure that MFWP is meeting its management objective of maintaining 12 wolves in the project area and that elk population objectives are met.

## INTRODUCTION

Gray wolves (*Canis lupus*) increased in number and expanded their distribution in Montana because of natural emigration from Canada and a federal effort that reintroduced wolves into Yellowstone National Park (YNP) and the wilderness areas of central Idaho in 1995 and 1996. Reintroduced wolves are designated as a Nonessential Experimental Population under Section 10(j) of the Endangered Species Act (Figure 1). By December 2002, the experimental population and the naturally colonizing endangered population of northern MT and ID reached recovery levels of 30 breeding pairs in the northern Rocky Mountains of Montana, Idaho, and Wyoming and were well distributed among the three states for 3 consecutive years. The USFWS approved the Montana Gray Wolf Conservation and Management Plan in early 2004. However, permanent delisting of the biologically recovered wolf population has been delayed because of legal challenges in federal court.

Prior to delisting, Idaho and Montana developed management plans and enacted laws that provided adequate regulatory mechanisms to assure long-term survival of wolves. USFWS in cooperation with Idaho and Montana, developed a new rule under Section 10(j) that provided guidelines and allowed for management authorities to be transferred to states under a cooperative agreement with the USFWS or Memorandum of Agreement with Department of Interior to states with approved management plans. The 10(j) rule was adopted by the USFWS in February 2005 (*Endangered and Threatened Wildlife and Plants; Regulation for Nonessential Experimental Populations of the Western Distinct Population Segment of the Gray Wolf* [50 CFR Part 17.84]). The 10(j) rule was further modified in January 2008.

Under Section (v): *"If gray wolf predation is having an unacceptable impact on wild ungulate populations (deer, elk, moose, bighorn sheep, mountain goats, antelope, or bison) as determined by the respective State and Tribe (on reservations), the State or Tribe may lethally remove wolves in question."* Under the January 2008 rule, unacceptable impact is defined as *"Impact to a wild ungulate population or herd where a State or Tribe has determined that wolves are one of the major causes of the population or herd not meeting established State or Tribal population or herd management goals."* The 2008 10(j) rule listed the following elements that must be described in any removal proposal: 1) the basis of ungulate population or herd management objectives; 2) what data indicate that the ungulate herd is below management objectives; 3) what data indicate that wolves are a major cause of the unacceptable impact to the ungulate population; 4) why wolf removal is a warranted solution to help restore the ungulate herd to management objectives; 5) the level and duration of wolf removal being proposed; 6) how ungulate population response to wolf removal will be measured and control actions adjusted for effectiveness; and 7) demonstration that attempts were and are being made to address other identified major causes of ungulate herd or population declines or of State or Tribal government commitment to implement possible remedies or conservation measures in addition to wolf removal.

MFWP reviewed elk data in the Bitterroot Valley elk management units to determine if elk populations are below management objectives. The West Fork elk management unit is below objectives (Figure 2). This proposal reviews evidence that wolf predation is a major mortality cause preventing the West Fork

elk population from increasing and reaching MFWP management objectives. Additionally, this proposal identifies ongoing efforts to reduce adverse impacts of other factors influencing the West Fork elk population, and identifies approaches to monitor the effects of lethal wolf removal. This proposal provides a review of the available information and justification for wolf removal under Section 10(j) on an interim basis while the wolf remains listed. It represents the only wolf management tool available to MFWP since MFWP is unable to implement its management plan because of continuing ESA protections.

## **SECTION 10(j) REMOVAL PROPOSAL CRITERIA**

### **1) Basis of ungulate population or herd management objectives.**

Montana's elk management is currently guided by a statewide Elk Management Plan (Plan) that was formally adopted by the FWP Commission in December 2004. The Plan formalizes management objectives. Formal adoption by the FWP Commission culminated a public development process that included scoping and public review of a draft document. This effort included mailings sent to 1290 landowners, 2024 random elk hunters, 409 entities who submitted scoping comments, 204 entities on an "interested participant list" and public meetings attended by 364 people at 24 locations.

The Plan identifies specific elk populations throughout the state, which are assigned to one of 44 Elk Management Units (EMUs). Each EMU circumscribes a geographic area having unique habitats and landownership patterns, management challenges, population objectives, hunting season types, monitoring methods and management implementation criteria for each population. Population objectives are based upon habitat, historic population monitoring data and elk harvest and concerns/experience with game damage to private property.

Montana's Plan also outlines a range of harvest regulatory packages designed to manage elk numbers according to pre-determined objectives relative to the status of the population. Regulatory packages range from a set of liberal hunting opportunities if the elk population is above objective, standard if the population is meeting objectives, or restrictive if the population is below objectives. For the West Fork EMU, liberal hunting regulations when the elk population is above objective allow issuance of more than 350 licenses to harvest antlerless (cow-calf) elk and/or up to 5 weeks of opportunity for any general elk license-holder to harvest an antlerless elk. When the elk population is at objective, standard regulations allow an annual harvest of 100-175 antlerless elk by commensurate numbers of antlerless license-holders (no antlerless harvest by general license-holders). When the elk population is below objective, regulations allow the harvest of less than 100 antlerless elk by antlerless license-holders.

Within the context of Montana's Elk Management Plan, the West Fork EMU (Elk Hunting District 250) has a total population objective of 1600 – 2400 observed elk, with at least 10 bulls per 100 cows observed during aerial surveys. Additionally, 100% of annual bull harvest is prescribed to be brow-tined bulls (BTBs) with at least 15% having six points or more. These objectives reflect a population of elk in an area comprised largely of public lands with 5% of the EMU being private lands contributing 14% of critical wintering habitats. With 94% of elk habitat on National Forest lands primarily, the West Fork elk population contributes disproportionately to the public's enjoyment of elk in a state where only 45.3% of elk habitat is on the National Forests overall, and provides the enhanced opportunity by virtue of public land to manage elk habitat and achieve elk and carnivore harvests to meet Plan objectives.

In addition, a ratio of 25 calves per 100 cows is recognized in the Plan as a minimum standard for recruitment in the West Fork to maintain a stable elk population. Calf-cow ratios lower than 25 for two successive years when the elk population is below the midpoint of the objective range of 1600-2400 (i.e. 2000 total observed elk) trigger restrictive opportunities to harvest antlerless elk. This recognizes that a

recruitment rate lower than 25 calves per 100 cows generally does not produce a harvestable surplus of antlerless elk if the goal is to maintain or grow the population back to its objective. This recruitment standard for the West Fork was finalized in December 2004 when the FWP annual wolf count in the West Fork was 25% of its level in 2009, and should be revisited for its adequacy in managing an elk population subject to elevated predation pressure after adoption of the Plan.

## **2) What data indicate that the ungulate herd is below management objectives.**

Unprecedented low calf recruitment in the period 2007-2010, as indicated by the ratio of 10-month-old calves per 100 cows in spring aerial surveys, is the impetus for this proposal. MFWP obtains calf:cow ratios and other elk field data annually by conducting spring (April-May) aerial surveys for elk in Hunting District 250. The annual surveys cover all winter and early spring range, counting all elk observed within these ranges and classifying as many as possible to sex and age-class. All elk observed in the spring aerial surveys were successfully classified to sex and age-class in 2009 and 2010. In addition to the annual aerial surveys, FWP biologists keep field records of elk observed during normal ground operations or incidental observations of elk when flying other survey or telemetry duties. These classifications are used to supplement annual aerial survey observations and provide some insight into the timing and extent of calf production, recruitment and mortality.

Based on field data, FWP concluded that the West Fork EMU elk herd is below the calf:cow ratio objective for the last several years. Low overall recruitment also contributes to the total elk population size being below the objective identified in the elk plan. Furthermore, bull:cow ratios are also not meeting the West Fork elk population objective. Wolf predation is a factor contributing to all three metrics being below objective, and all three may be traced back to the unprecedented drop in calf:cow ratios.

In 2007-2010, ratios of 10-month-old calves per 100 cows in the West Fork elk population were lower than observed in any previous 4-year period in the West Fork since calf:cow ratios were first collected in 1971 (Table 1). The average of 15 calves per 100 cows in 2007-2010 was 40% below the statewide Elk Management Plan standard of 25 calves per 100 cows for the West Fork EMU. Calf:cow ratios of 9-11 in 2009-2010 were 56-64% below the same standard, and were the lowest ever documented in the West Fork elk population. In 2010, a ratio of only 6 calves per 100 cows was obtained across the segment of the population within the interior of the national forest, comprising 75% of the West Fork population.

In 2008-2010, elk counts of 744-863 were 46-54% below the minimum population objective of 1,600 elk for the West Fork EMU. Although the minimum population objective was increased in 2005 and again in 2006, elk counts in 2008-2010 also were 12-24% below the historic minimum population objective of 980, which was set in 1992 and met in all but 1 year prior to 2008 (Table 1). The observed sex ratios were 7 bulls per 100 cows in 2009 and 4 bulls per 100 cows in 2010. Both of these sex ratios are below the management objective of 10 bulls per 100 cows for the West Fork EMU.

The effect of a depressed calf:cow ratio persists for years and is multiplied in its effect on population production and growth beyond any single year's occurrence. The 2009 recruitment cohort of females entered the breeding population as 2.5-year-olds in September 2010, and the 2010 recruitment cohort will enter the breeding population in 2011. In September 2011 the largest numeric cohorts of the female breeding population (i.e., 2.5 and 3.5-year-olds) will be 60% lower in number than expected. The suppressing effect on overall population production will persist in succeeding years as these two cohorts move through the prime reproductive ages. If poor calf survival occurs again in 2011, its effect will be magnified upon the lower production contributed by the 2009 cohort, and if again in 2012 its effect will

be magnified upon the lower production across 2 breeding cohorts. In turn, poor calf survival and recruitment in 2011 and 2012 would form a block of 4 successive, severely underpopulated, reproductive cohorts. The West Fork population is poised on the brink of a steep and unprecedented decline that can only be avoided by immediately and sharply elevating survival rates of calves through their first year of life.

### **3) What data indicate that wolves are a major cause of the unacceptable impact to the ungulate population.**

The sharp decrease in the West Fork calf:cow ratio during 2009 and 2010 is most likely due to increases in predation from a growing wolf population (Kunkel and Pletscher 1999, Smith et al. 2004, Becker et al. 2009). Elk numbers and particularly calf recruitment have declined as wolf numbers increased (Figure 3). As described below, changes in black bear and lion population management, habitat conditions, and weather cannot explain the steep and sudden decrease in calf:cow ratios. The only factor affecting elk population dynamics that has changed significantly during this time period is an increasing trend in the total minimum wolf population and the wolf-elk ratio. Wolf-elk ratios, estimated as the number of wolves per 1000 elk, are higher in the West Fork than in adjacent elk populations and hunting districts (Table 2). At this wolf-elk ratio, the elk population is expected to be impacted by wolf predation through the effects of wolf predation on calf recruitment (Hamlin et al. 2009). Without the ability to manage the wolf population at levels that are compatible with maintaining the West Fork elk herd within objective, the West Fork elk herds will continue to decline further below objective.

Wolves first established in the West Fork in 2001 with the formation of the Painted Rocks pack. Three other packs were documented in 2005, 2007 and 2008 and the population has shown continuous growth (Table 3). These packs are believed to predominantly reside in Montana but may spend some time in Idaho. Likewise, packs that reside primarily in the Salmon and Selway Zones of Idaho may spend time in the West Fork. In 2010, one pack (Trapper Peak) was mostly removed due to livestock conflicts and status of this pack is unknown at this time. Also in 2010, a new pack was documented for the first time in the upper West Fork, adjacent to the Painted Rocks pack.

Elk harvest by hunters does not explain the sharp decline in calf:cow ratios in 2007-2010. Hunter harvests of calves in the fall prior to spring surveys varied from 3 to 7 in 2006-2009 and were negligible historically (Table 1). Conversely, hunter harvests of adult cow elk varied from 65 to 181 during the same period 2006-2009, which would elevate the calf:cow ratio post-harvest due to the harvest of cows. Calf:cow ratios declined in 2007-2010 as the elk population declined, demonstrating an independence of this calf recruitment decline from population density and carrying capacity.

Calf recruitment is essential to replace hunter harvest and other mortality across the elk population. Calf mortality due to causes other than hunting apparently has increased in the West Fork since 2005, which affects sustainable harvest rates. Cow-calf harvest rates of 9-13% of the spring total elk count, which were sustainable historically, have not been sustainable in the West Fork since 2005 (Table 1). Spring total elk counts declined from 1,914 in 2005 to 764 in 2010 at this harvest rate. Historically, spring total elk counts increased steadily from lower levels (513 elk) in 1981 to a count of 969 elk in 1988 under similar or slightly higher cow-calf harvest rates than those applied since 2005 (Table 1). Antlered bull harvest rates were similar in both periods, varying from 16 to 19% since 2005 and generally from 16 to 22% in 1981-1988. The coincidence of these data suggest that the recent decline in calf recruitment rate is a principal cause of the failure of the West Fork elk population to increase in response to reduced cow-calf harvests since 2005.

Cow-calf harvest rate was increased by instituting liberalized hunting regulations in 2004 to temper the population growth rate as West Fork elk numbers increased within population objective, and were on a trajectory to exceed objective. The West Fork elk population, by 2007, was incapable of sustaining the same population stabilizing cow-calf harvest rate that it had sustained in the 1980s. Lowered cow-calf harvests in 2008-2009 represented an effort by FWP to responsively implement conservative hunting regulations that would increase elk numbers, but instead resulted in consistent rates of harvest due to the sharply declining population and calf recruitment levels. By 2009 FWP concluded that the West Fork population no longer produced a harvestable surplus of cow-calf elk, and regulations for 2010 provide for negligible cow-calf hunting opportunity (<1% harvest rate allowed).

Lion predation alone does not explain the sharp decline in calf:cow ratios in 2007-2010. Although MFWP does not conduct annual surveys of lion populations, MFWP can attest to extremes in lion abundance that have occurred in the past 20 years, as reflected in lion harvest opportunities (Figure 4). Lion abundance across west-central Montana increased to peak levels in the 1990s, and while calf:cow ratios were not collected during 1993-1998, calf:cow ratios in 1991-1992 and 1999 met the recruitment standard for the West Fork EMU and the elk population steadily increased from 844 to 1,285 elk from 1990 to 1999 (Table 1). MFWP applied high lion harvest levels in the late 1990s and rapidly reduced lion numbers to a low relative density by the early 2000s (Figure 4), which produced little apparent response in calf:cow ratios before 2004. However, the elk population growth rate (i.e., the rate of change between successive spring elk counts) appeared to increase in the early 2000s at the lowest lion levels (Table 1). Lion numbers have increased to intermediate or higher levels in the mid-to-late 2000s (Figure 4). These data suggest that elk population dynamics responded to extreme swings in lion population levels in the absence of wolves or at low wolf densities. However, the magnitude of decline in elk recruitment in response to the addition of increasing and subsequent high wolf densities in 2007-2010 is unprecedented across 30 years of data (Table 1).

Black bear predation alone does not explain the sharp decline in calf:cow ratios in 2007-2010. Predation by black bears may be a primary cause of neonatal calf mortality (White et al. 2010). However, elk survey and classification data indicate that MFWP has historically managed black bear populations in the West Fork at levels that did not appreciably impact the elk population's ability to compensate for predator and hunter-caused mortality. Any hunter may purchase a license to harvest black bear, and bear seasons consistently have been open to all licensed hunters from April 15 to May 31 and September 15 to the end of November since 1985 (the spring season was lengthened by 2 weeks and an archery season added in the fall of 2010). Bear Management Unit (BMU) 240, which includes the West Fork, averaged 30 hunter-harvested black bears annually from 1994 to 2009. West Fork calf recruitment averaged 27 calves per 100 cows from 1990 through 2004. This calf recruitment average occurred prior to the 2007 increase in wolf numbers. This compares with a calf recruitment average of 15 calves/100 cows from 2007 to 2010.

Forest succession or vegetation changes do not explain the sharp decline in calf:cow ratios in 2007-2010. Elk select burned areas as habitat (Pearson et al. 1995, Singer and Harter 1996). Approximately one-third of the West Fork (150,000 acres) burned in the wildfires of 2000 and 2005 (Figure 5). The remaining two-thirds of the West Fork have not burned since the early 1900s, except for small acreages. As expected, calf:cow ratios in 2002-2006 were similar to or higher than calf:cow ratios observed in the 2 years preceding the fires of 2000-2005 (Table 1). While calf recruitment response to the landscape-scale wildfires was neutral or positive, there was no similarly large, abrupt habitat change to explain the sudden and sustained drop in recruitment in 2007-2010.

Habitat loss to human development does not explain the sharp decline in calf:cow ratios in 2007-2010. Forest Service land comprises 94% of the West Fork, where human development or comparable habitat losses did not occur (Figure 6). Private land comprises 14% of the elk winter habitat, and accounted for a minority (39%) of the annual elk observations on spring green-up in 2002 (MTFWP 2005) and 2010 (~25%). Although subdivision and development of elk habitat is an important issue in west-central Montana, it's realized pace and potential effect on elk calf recruitment in the West Fork in 2007-2010 was negligible.

Weather does not explain the sharp decline in calf:cow ratios in 2007-2010. Snowfall was slightly above or far below the 1948-2009 average of 45.1 inches at Missoula Airport in the winters of 2006-2007 through 2009-2010 (-25.2, +4.7, 0.0, -26.2). Annual precipitation was slightly above or below the 1948-2009 average of 13.82 inches in the June-May periods of 2006-2007, 2008-2009 and 2009-2010 (+0.3, -0.31, -1.71), with reduced winter precipitation replaced by growing season precipitation. Weather in June 2007-May 2008 would have been expected to offer the greatest nutritional challenge to elk calves, due to a shortage of 4.1 inches of annual precipitation (mostly in the growing season) coupled with 4.7 inches of snowfall above normal. However, the resulting ratio of 25 calves per 100 cows in May 2008 was the highest observed in the period 2007-2010, which further supports the independence of the steep decline in calf:cow ratios to any weather pattern or event.

#### **4) Why wolf removal is a warranted solution to help restore the ungulate herd to management objectives.**

Effective management of ungulate and large carnivore populations requires an approach that strives to integrate and balance the value and contribution of big game species like elk with the value and ecological contributions of large carnivores. Furthermore, the management of these populations is influenced by variable and dynamic environmental conditions that affect habitat quality and quantity for all species over time. Management of ungulate populations at objective levels provides highly-valued recreational opportunities to the public as well as providing a prey base that can support more robust carnivore populations. A multiple carnivore guild including black bear, mountain lion and wolf such as now found in the Bitterroot, adds additional management complexity to this scenario.

Managing adult female elk survival and annual calf recruitment rates is a prerequisite to successfully sustaining and meeting population objectives. MFWP currently has management authority to modify elk, bear and lion hunter harvest rates in order to attempt to meet population objectives. However, comprehensive overall management of all the wildlife resources and elk in particular has been compromised by the loss of authority and flexibility to manage wolf numbers in an integrated fashion across this same landscape. The West Fork elk population is substantially below State of Montana Elk Management Plan objectives for Hunting District 250. Given low calf survival rates, the number of adult cows is expected to further decline unless remedial and immediate action is taken. MFWP has implemented conservation measures to reduce antlerless harvest rates by hunters and to address bear and lion predation rates at current population levels. This proposed 10(j) action focuses on the wolf component which represents the major factor not currently addressed in attempting to restore elk recruitment (calf:cow ratios) to objective levels.

#### **5) The level and duration of wolf removal being proposed.**

Montana proposes to reduce wolf numbers in HD 250 from the minimum of 24 counted in December 2009 to a year-end minimum of 12 wolves represented by 2 – 3 packs from 2010 through 2015. The level of removal would be dependent on pre-treatment wolf abundance in an adaptive fashion based on annual wolf and elk population monitoring data. This level of removal follows specific direction given by



the Montana Fish, Wildlife & Parks Commission for the management of wolves to meet 10 fundamental objectives:

- 1) Maintain a viable and connected wolf population.
- 2) Gain and maintain authority for State of Montana to manage wolves.
- 3) Maintain positive and effective working relationships with livestock producers, hunters, and other stakeholders.
- 4) Reduce wolf impacts on livestock.
- 5) Reduce wolf impacts on big game populations.
- 6) Maintain sustainable hunter opportunity for wolves.
- 7) Maintain sustainable hunter opportunity for ungulates.
- 8) Increase broad public acceptance of sustainable harvest and hunter opportunity as part of wolf conservation.
- 9) Enhance open and effective communication to better inform decisions.
- 10) Learn and improve as we go.

The Commission's decision in July 2010 was the product of extensive public involvement and MFWP input. For the larger Wolf Management Unit (WMU) including the West Fork, the Commission approved a harvest quota of 34 wolves for 2010, with the intent that a harvest of 34 wolves was needed to meet the objectives stated. The need for reducing wolf numbers counted in 2009 by 50% in the West Fork was incorporated in the Commission's harvest prescription for the WMU as a whole. The proposed wolf removal to a level of 12 wolves under 10 (j) seeks to implement this direction in the West Fork where an imminent need exists and the consequences of delay will only exacerbate the current situation.

MFWP would maintain a minimum of 12 wolves in the West Fork over the 5-year duration of this proposed action (December 2010 through 2015). This level of wolf presence corresponds with the maximum range (11-14) of wolf numbers that most recently produced elk calf:cow ratios of at least 25 calves per 100 cows (Figure 3), and would represent a 50% reduction in wolf numbers documented in December 2009. A reduction to a level of 12 wolves would adjust West Fork wolf numbers to levels documented in 2005 and 2006, 3 and 4 years post-recovery (Table 3). A harvest of 12 wolves early in 2011 would adjust the population to the desired level of 12 wolves, based on the 2009 count. Removals during subsequent years would be adjusted in response to updated wolf counts and their relation to the objective of 12.

Levels of wolf removal and means of removal would be set annually by the Montana Fish, Wildlife & Parks Commission under established public process. Means of removal may include fair chase hunting or trapping by the public, control actions by agency personnel or designees, or any combination approved by the Commission.

**6) How ungulate population response to wolf removal will be measured and control actions adjusted for effectiveness.**

MFWP will monitor wolf and elk populations annually. The wolf population response to wolf removal will be measured by a December-January enumeration of packs and wolf numbers per pack, as in Table 3. The ungulate population response to wolf removal will be measured according to 2 metrics: total population size and calf recruitment rate. Wolf removals will be considered effective if the total elk

count increases toward a minimum objective level of 1,600 elk (the lower limit of the objective range), and if calf recruitment rates increase toward a minimum of 25 calves per 100 cows.

The need for a biologically meaningful correction in the elk calf:cow ratio is immediate if a more severe and lasting decline in the West Fork elk population is to be avoided. Therefore, Montana is beginning an investment in elk research in the West Fork to assess cause-specific mortality of elk calves in relation to habitat, nutrition, predation by wolf, lion and bear, and any other discernable factors. A principal management application of this research will be to adaptively refine harvest levels by species (i.e., lion, bear, wolf) for the purpose of achieving the most rapid and sustainable response in calf recruitment consistent with the long-term conservation of large carnivore populations. This intended management application of research results in real time will provide the information needed to prescribe and direct actions at magnitudes and scales that require specific supporting data obtained with intensified scientific rigor, and resulting management may focus more or less heavily on resources in addition to wolf harvest in succeeding years. Although this research is not essential to implementing this proposal, it represents an enhancement that Montana hopes to deliver, contingent on obtaining additional grants of supplemental funding.

**7) Demonstration that attempts were and are being made to address other identified major causes of ungulate herd or population declines or of State or Tribal government commitment to implement possible remedies or conservation measures in addition to wolf removal.**

Montana progressively implemented restrictions on elk hunting from 2008 through 2010 in response to sharply declining elk numbers and low calf:cow ratios. As a result, in 2010 elk hunting regulations in the West Fork are the most restrictive among the 25 hunting districts and across 10,000 square miles in west-central Montana where a general rifle season is offered. In 2008, the hunting of antlerless (cow-calf) elk was eliminated as an opportunity for an estimated 1,367 general elk license-holders who reported hunting elk in HD 250 (although low realized harvests by disabled hunters with a permit to hunt from a vehicle, youth ages 12-15, and archers in the archery-only season remained valid). In 2009 antlerless (cow-calf) permits were reduced from 25 to 5, and in 2010 Montana eliminated the opportunity for low harvests of cow-calf elk by disabled hunters with a permit to hunt from a vehicle, youth ages 11-15, and archers in the archery-only season in HD 250. In 2010, no more than 5 cows or calves may be legally harvested in HD 250. This represents an 86% decrease from the lowest realized harvest in the past 30 years (Table 1) and is the lowest since a harvest of only 1 cow and 1 calf occurred in 1979. Actual cow-calf harvests in 2008, 2009, and the maximum for 2010, were 56%, 55% and 4% of the 2007 harvest.

FWP also is considering whether the opportunity to hunt antlered bull elk on the general license can be sustained under calf recruitment levels observed in 2007-2010, and whether HD 250 should become the second general elk hunting district in Montana to restrict all elk hunting to low and limited numbers of permit-holders in response to unprecedented elk declines. If implemented, permit-only hunting for bull elk in the West Fork would represent a setback as measured against the Statewide Elk Recreation Objective to provide for a diverse elk hunting opportunity within, as much as possible, a 5-week general season and a 5 to 6-week archery season.

Montana increased hunting opportunities and harvest targets for mountain lion in the West Fork in response to sharply declining calf:cow ratios. In 2009, FWP more than doubled the number of lion special licenses from 4 in 2008 to 10. For 2010, FWP increased lion special licenses to 15, and increased the female subquota from 1 to 2. The lion license level for 2010 in the West Fork is the highest (alongside 2 other Bitterroot districts) for a single deer-elk hunting district in west-central Montana.

In combination with increased lion harvest targets, FWP lengthened the black bear spring hunting season in the West Fork by 2 weeks for 2010 and 2011. The spring bear season is now open through June 15<sup>th</sup>. In 2010 this extension increased the bear spring harvest in HD 250 from 2 to 5, and by 2 females. Spring bear seasons in the West Fork and adjacent HD 270 are the longest in west-central Montana (seasons elsewhere in west-central Montana still close on May 31). The fall bear season is standardized across west-central Montana; i.e., open to general bear license-holders for archery only during September 4-14 and for rifle from September 15 through November 28.

Although habitat is not limiting the West Fork elk population, FWP works closely with the Forest Service, Ravalli County, and private landowners to improve habitat and protect privately owned habitats from development. FWP is presently working with the West Fork and Sula Ranger Districts of the Bitterroot National Forest on prescribed fire projects totaling over 8,000 acres. A primary focus of these projects is to enhance winter range forage conditions for elk, mule deer and moose. FWP has also encouraged and supported several large-scale thinning and fuel reduction projects on USFS administered lands in HD 250 in 2009 and 2010. These projects have affected almost 22, 000 acres , over 80% of which occurred on big game winter range, in HD 250 since 2000. FWP routinely provides technical assistance to Ravalli County when reviewing subdivision regulations and development proposals, though only 5 minor (<63 acres) proposals of this type have come to FWP's attention in the West Fork since 1998. Similarly, FWP advises the Bitterroot Land Trust, Rocky Mountain Elk Foundation, other land trusts and Ravalli County in prioritizing private lands for soliciting and accepting grants of perpetual conservation easements, and for allocating the county's open space funds.

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Figure 1. Map of the federal wolf management areas in Montana showing the endangered area where the 1999 Interim Wolf Control Plan applied and the experimental area where the 10(j) regulations apply. The central Idaho and Greater Yellowstone experimental areas are shown as one since the approved status of Montana's state wolf plan allowed the special 10(j) regulations to apply equally in each area.

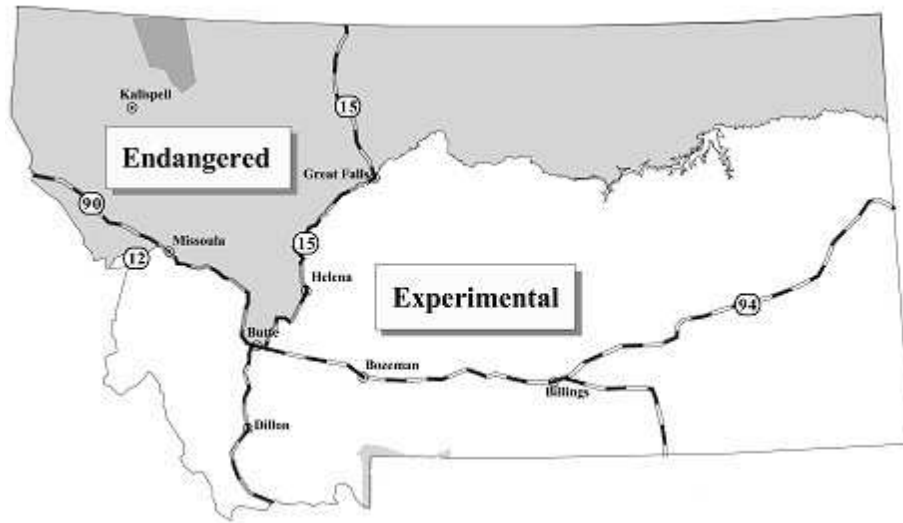


Figure 2. Map of the West Fork Elk Management Unit (EMU). The West Fork EMU is a 707-square-mile area encompassing the West Fork of the Bitterroot River drainage. The Idaho state line bounds the west and south sides. The USDA-Forest Service-Bitterroot National Forest administers 94% of this EMU and 5% of this EMU is private land.

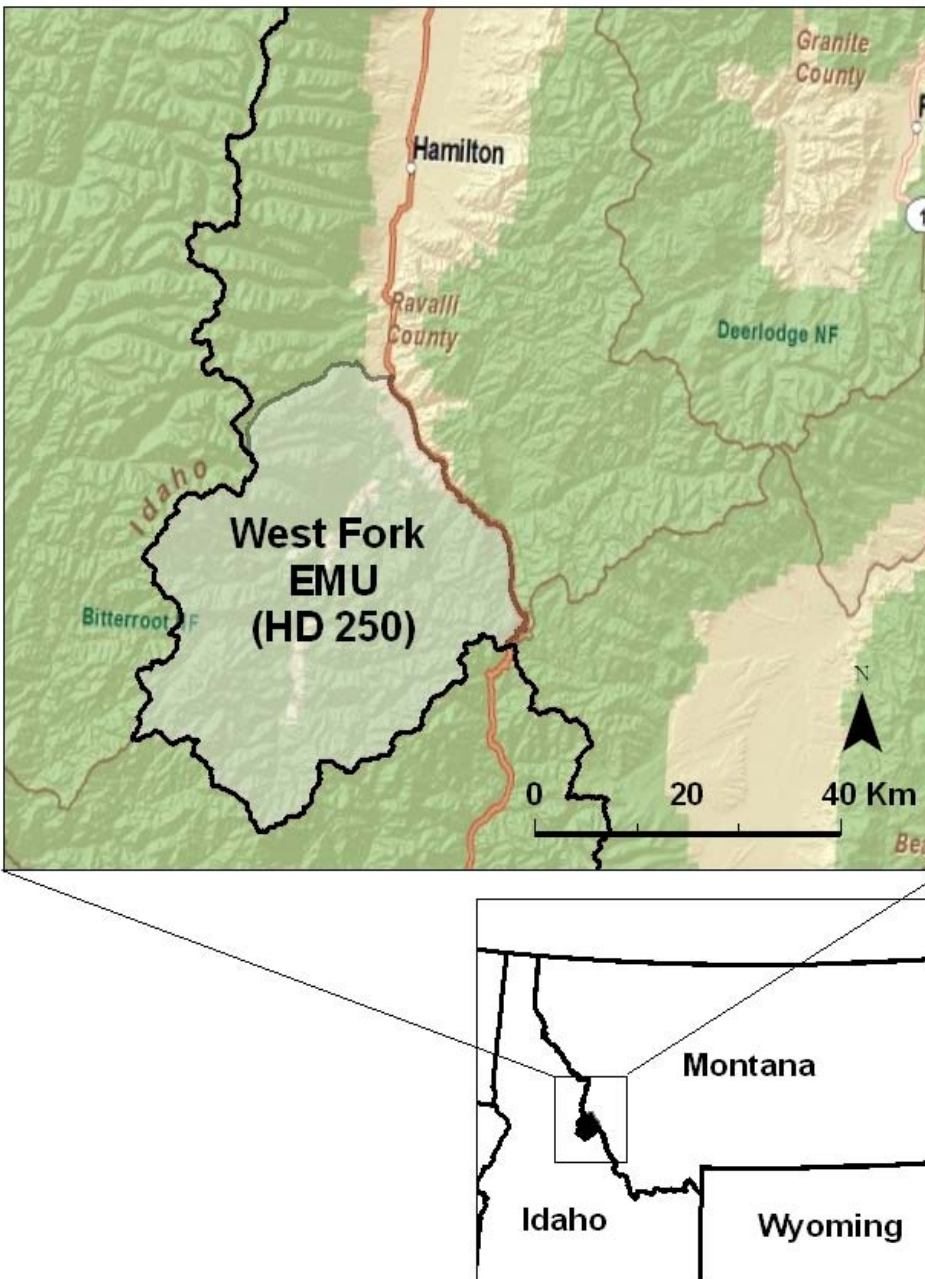


Figure 3. Relationship of December-January wolf numbers and late-winter calf:cow ratio in the West Fork, December 1998-April 2010.

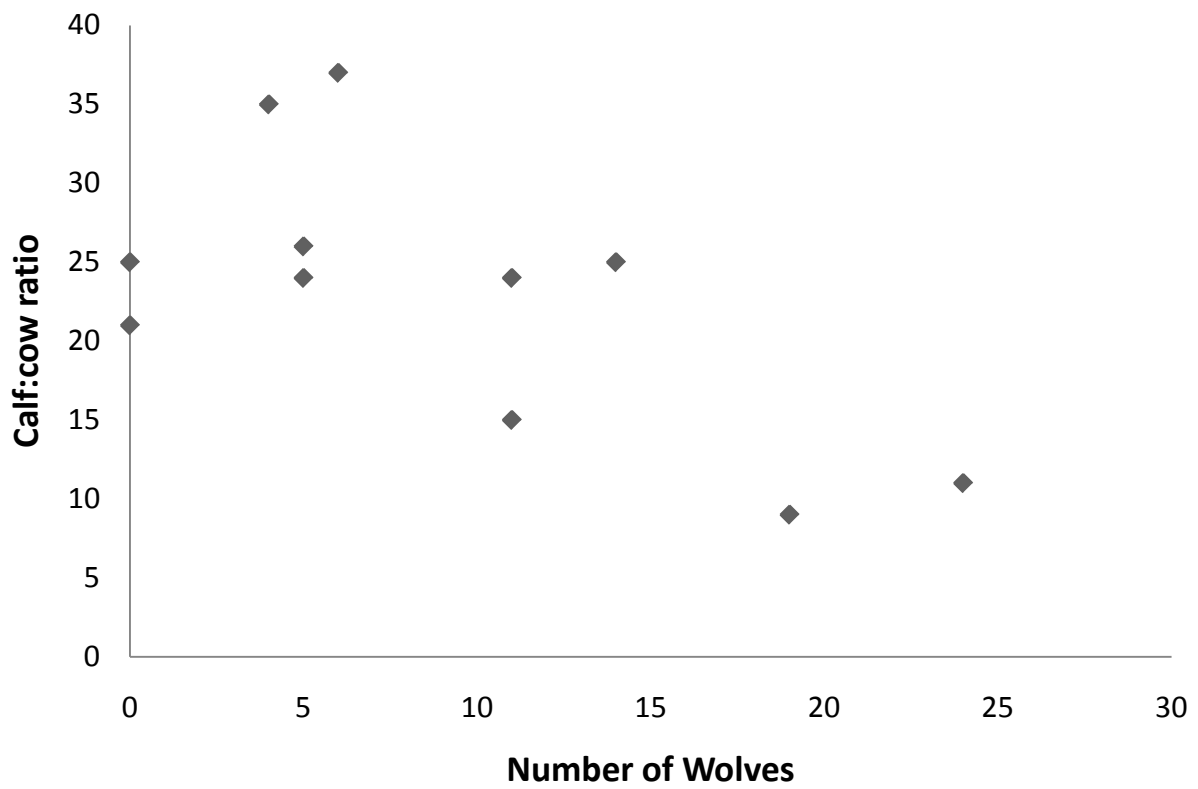
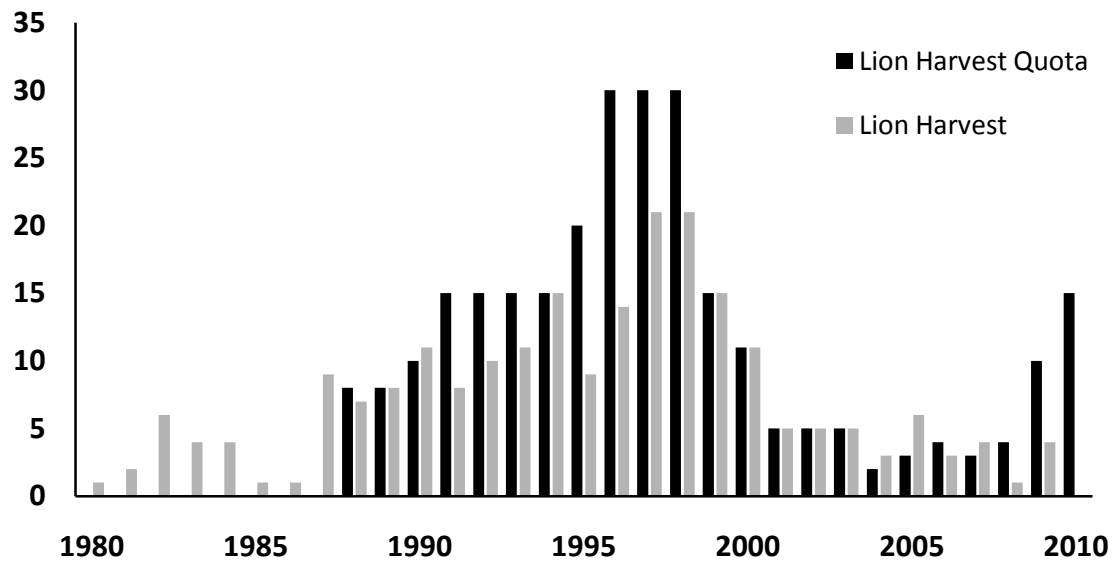




Figure 4. Lion hunting history in the West Fork (HD 250), 1980-2010. The winter harvest for 2010 is yet to begin. All harvests pertain only to HD 250. Harvest quotas from 1996 to 2010 pertain only to HD 250. Prior to 1996, quotas pertain to HD 250 and HD 270. Harvest was not limited by a quota prior to 1988.



**Bitterroot National Forest**

**Fire History**

**Vicinity Map**

Montana

Bitterroot NF

Idaho

Missoula, Montana

Stevensville, MD

Bitterroot SO

Lost Horse Creek

Darby, MD

Forest Park, MD

Salmon, Idaho

HD 250 approximate boundary

**Legend**

Fire History

**DECADE**

- 1870
- 1880
- 1890
- 1900
- 1910
- 1920
- 1930
- 1940
- 1960
- 1970
- 1980
- 1990
- 2000

0 5 10 20 Miles

Figure 6. United States Forest Service and private land contributions to elk habitat in the West Fork, Hunting District 250.

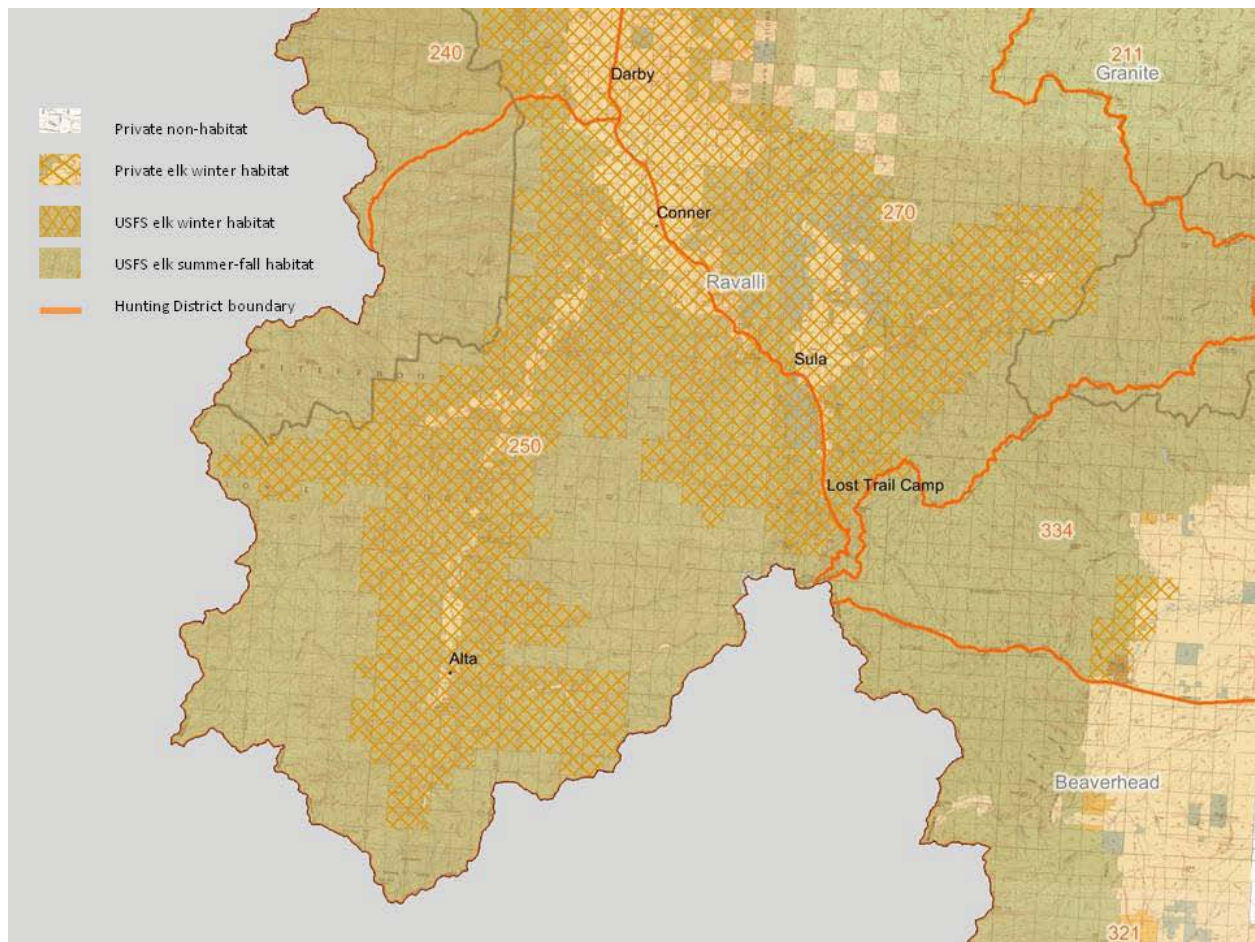


Table 1. West Fork elk trend count, population objective as defined by the Statewide Elk Management Plan, harvest regulations and statistics, calf per 100 cow ratio, and bull per 100 cow ratio data, 1980-2010. Calf recruitment is indexed by the number of calves per 100 cow determined during late-winter elk classification surveys. The number shown for cow-calf harvest and harvest rate in 2010 is the highest legal harvest allowable.

Year	Total Elk Count	Elk Count Objective	Hunting Regulations <sup>1</sup>	Cow(calf) Harvest	Cow-calf Harvest Rate	Antlered Bull Harvest	Antlered Bull Harvest Rate	Calf:Cow Ratio	Bull:Cow Ratio
1980	612	-	AB, EP	109(53)	26	137	22	52	9
1981	513	-	AB, EP	65(14)	15	96	19	-	-
1982	534	-	AB, AP	50(6)	10	80	15	34	10
1983	608	-	AB, AP	74(12)	14	124	20	45	13
1984	726	-	AB, AP	79(7)	12	150	21	44	23
1985	739	-	AB, AP	83(19)	14	160	22	49	15
1986	780	-	AB, AP	78(10)	11	122	16	44	14
1987	994	-	AB, AP	62(9)	7	84	8	49	13
1988	969	-	AB, AP	112(3)	12	188	19	33	8
1989	715	-	AB, AP	52(8)	8	136	19	36	3
1990	844	-	AB, AP	35(3)	5	116	14	16	7
1991	817		BB, AP	50(9)	7	76	9	27	5
1992	991	980-1062	BB, AP	49(7)	6	68	7	44	15
1993	950	980-1062	BB, AP	42(3)	5	110	12	-	-
1994	1197	980-1062	BB, AP	60(4)	5	106	9	-	-
1995	1264	980-1062	BB, AP	43(4)	4	102	8	-	-
1996	1297	980-1062	BB, AP	-	-	-	-	-	-
1997	1081	980-1062	BB, AP	-	-	-	-	-	-
1998	1277	980-1062	BB, AP	-	-	-	-	-	-
1999	1285	980-1062	BB, AP	50(5)	4	135	11	25	5
2000	1215	980-1062	BB, AP	45(7)	4	124	10	21	12
2001	-	980-1062	BB, AP	51(0)	-	149	-	-	-
2002	1576	980-1062	BB, AP	49(12)	4	120	8	26	12
2003	1703	980-1062	BB, AP	84(7)	5	227	13	24	19
2004	1614	980-1062	BB/ES	252(28)	17	380	24	35	10
2005	1914	1120-1680	BB/A	209(21)	12	357	19	37	18
2006	1462	1600-2400	BB/AA	181(7)	13	279	19	24	21

	<b>Total Elk Count</b>	<b>Elk Count Objective</b>	<b>Hunting Regulations<sup>1</sup></b>	<b>Cow(calf) Harvest</b>	<b>Cow-calf Harvest Rate</b>	<b>Antlered Bull Harvest</b>	<b>Antlered Bull Harvest Rate</b>	<b>Calf:Cow Ratio</b>	<b>Bull:Cow Ratio</b>
<b>2007</b>	1373	1600-2400	BB/AA	118(14)	10	233	17	15	11
<b>2008</b>	863	1600-2400	BB, AP	65(9)	9	139	16	25	22
<b>2009</b>	744	1600-2400	BB, AP	70(3)	10	122	16	9	7
<b>2010</b>	764	1600-2400	BB, AP	5	1	-	-	11	4

<sup>1</sup>Hunting Regulations: AB = antlered bull legal on the general elk license, EP = either-sex permits limited in number through a special drawing, AP = antlerless (cow-calf) permits or licenses limited in number through a special drawing, BB = branch-antlered or brow-tined bull on the general elk license, BB&A = antlerless elk also legal on the general elk license in the last 9 days of the hunting season, BB&AA = antlerless elk also legal on the general elk license in the last 23 days of the hunting season and antlerless hunting closes upon achieving a harvest quota.

Table 2. Estimated wolf-elk ratio for Bitterroot area hunting districts. The ratio is calculated as the minimum estimate of number of wolves per 1000 elk. The West Fork (Hunting District 250) has the highest wolf:elk ratio within the Upper Bitterroot Valley.

<b>Hunting District</b>	<b>Year</b>	<b>Number Wolves</b>	<b>Number Elk</b>	<b>Wolves:1000 elk</b>
204	2009	6	390	15.38
	2010	9	390	23.08
240	2009	12	645	18.60
	2010	11	694	15.85
250	2009	19	744	25.54
	2010	24	764	31.41
261	2009	0	444	0.00
	2010	4	745	5.37
270	2009	15	3527	4.25
	2010	13	3480	3.74

Table 3. Minimum estimate of the number of wolves in the West Fork, 1998-2009, prior to the pupping season.

Pack Name	Number of Wolves											
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Painted Rocks				5	5	4	6	4	4	2	9	7
Sula								7	7	10	5	5
Watchtower											2	6
Trapper Peak										2	3	6
<b>Total</b>	0	0	0	5	5	4	6	11	11	14	19	24